

ABSTRACT

Pit TB 1.42 is one of tin deposit mined by PT. Timah (Persero) Tbk, the activities of mine in the tin mine used open mine method with open pit system. *Pit* TB 1.42 is planning a new washing plant that equipped with three design of tailing settling pond to take in the material of tailing from washing plant. Tailing settling pond designed with closed water circulation system in order that the water in the last pond can use back for oredressing plant in jig.

Total of material tailing enter to the tailing settling pond is 4428,97 kg/hour with density of tailing is 1072 kg/hour obtainable debit of material tailing is $1,15 \times 10^{-3} \text{ m}^3/\text{s}$ will enter to the tailing settling pond. Debit of water from washing plant to enter the tailing settling pond is $0,58 \text{ m}^3/\text{s}$ originated from debit of ejector pump and debit underwater pump. Based on the result of calculation, obtainable total debit to enter the tailing settling pond are $0,68 \text{ m}^3/\text{s}$ for pond I, $0,67 \text{ m}^3/\text{s}$ for pond II, and $0,62 \text{ m}^3/\text{s}$ for pond III.

With percent solid 11,65 % and percentage of settling from the three pond one after the other are 84,75 %, 82,29 %, dan 69,95 % and volume of water and solid with one day work during 24 hours is $58752 \text{ m}^3/\text{h}$, ascertainable the volume of solid is $6791,73 \text{ m}^3/\text{day}$ whereas volume of solid in the tailing pond are $5758,71 \text{ m}^3/\text{day}$ for pond I, $842,63 \text{ m}^3/\text{day}$ for pond II, and $133,18 \text{ m}^3/\text{day}$ for pond III. Wide upper surface of the third tailing settling pond one after the other are $30237,65 \text{ m}^2$, $25059,09 \text{ m}^2$, and $12066,14 \text{ m}^2$ whereas wide under surface are $27419,48 \text{ m}^2$, $23216,74 \text{ m}^2$, and $10887,86 \text{ m}^2$ with depth 5 meters. Based on the data, we can accounting the third volume of tailing settling pond one after the other are $144142,83 \text{ m}^3$, $120689,58 \text{ m}^3$, dan 57385 m^3 , so with the volume, tailing settling pond only can take in the material tailing during 26 days for pond I, 144 days for pond II, and 431 days for pond III. Hoped that can getting to the target of washing plant per month, tailing settling pond must be done dredging. Dredging of the tailing settling pond can be made by two *Hydraulic Excavator Komatsu PC 200-7SEF* started in days to-13 for pond I during 15 days, days to-72 for pond II during 12 days, and days to-216 for pond III during 6 days.

To channeled the water from tailing pond to the other used water channel with diameter 0,8 meter. Used water channel in order to the dredging activity when schedule of maintenance tailing pond can work finely.